



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,480	09/15/2005	Masahiro Yamakawa	4670-0110PUS1	8164
2292 7590 01/18/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER REDDY, KARUNA P	
		ART UNIT 1713	PAPER NUMBER	
SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE		DELIVERY MODE	
3 MONTHS	01/18/2007		ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 01/18/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)
	10/549,480	YAMAKAWA ET AL.
	Examiner	Art Unit
	Karuna P. Reddy	1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-11 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date 9/15/2005.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102/103

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-4 and 6-11 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yamakawa et al (US 6,656,633 B2).

Yamakawa et al disclose a polymer binder for electrode comprising a) structural units derived from monofunctional ethylenically unsaturated carboxylic acid ester monomer - e.g. 2-ethylhexyl acrylate, n-butyl acrylate (column 4, lines 4-6); b) structural units derived from an ethylenically unsaturated carboxylic acid monomer - e.g. acrylic acid, methacrylic acid (column 4, lines 43-46) and c) structural units derived from a methacrylonitrile monomer – e.g. methacrylonitrile (column 4, line 54) (abstract). The polymer preferably further comprises d) structural units derived from a polyfunctional ethylenically unsaturated carboxylic acid monomer - e.g. ethylene glycol dimethacrylate (column 4, lines 60-67). The mass percentages of components a-d in example 1 of prior art are essentially similar to parts by mass of examples 1 to 4 in table 1 of instant invention and read on the mole percentages of claims 1 and 2. The liquid medium for the preparation of the binder composition can be either water or an organic liquid substance (column 7, lines 39-41). The polymer particles have a volume average particle diameter in the range of 0.001 to 500 µm and overlaps with the particle size of claim 3 (column 6, lines 63-65). The slurry comprises binder, active material and optional additives (column 8, lines 37-39). As specific examples of the active material there can be mentioned carbonaceous material (column 8, lines 53-54) that reads on claim 4. Further, electrically conductive

materials including carbon such as graphite and active carbon can be incorporated in the slurry (column 9, lines 19-22). Additives such as a viscosity modifier and a fluidizing agent can be added in the binder composition to improve properties of the slurry. As specific examples of the additives mention can be made of cellulose materials such as carboxymethyl cellulose (column 8, lines 11-17) and reads on the thickener of claim 6. The electrode is fabricated by a procedure wherein a collector such as metal foil is coated with the slurry and thus formed coating is dried (column 9, lines 29-32). A metal foil such as aluminum foil is coated with slurry and the formed coating is air dried at 120°C (column 10, lines 66-67; column 11, line 1) and overlaps with the drying temperature of claim 8. A battery is fabricated by using circular positive electrode or negative electrode, a lithium metal counter electrode and a separator, which is sandwiched between the positive electrode or negative electrode and a lithium metal counter electrode. An assembly of the two electrodes and separator is placed in a coin shaped outer casing. An electrolyte solution is injected into the casing and fabricated assembly is covered with a stainless steel cap (column 12, lines 8-31). The fabricated assembly reads on the electric double layer capacitor of claim 11.

The reference is silent with respect to glass transition temperature of the binder polymer.

However, in light of the fact that prior art teaches / discloses essentially the same composition as that of the claimed, one of ordinary skill in the art would

Art Unit: 1713

have a reasonable basis to believe that the binder composition of prior art exhibits essentially the same property(ies). Since PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobviousness difference. See *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980).

Even if properties of the binder of instant claims and prior art examples are not the same, it would still have been obvious to one of ordinary skill in the art to make binder having the claimed properties because it appears that the references generically embrace the claimed binder and the person of ordinary skill in the art would have expected all embodiments of the reference to work. Applicants have not demonstrated that the differences, if any, between the claimed binder and the binder of prior art give rise to unexpected results.

Claim Rejections - 35 USC § 103

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamakawa et al (US 6,656,633 B2) as applied to claims 1-4 and 6-11 above, and further in view of Kasuke (JP 08-107047).

The discussion with respect to Yamakawa et al in paragraph 4 is incorporated herein by reference.

The prior art of Yamakawa is silent with respect to carbonaceous material comprising active carbon having a specific surface area of 30 m² or more.

However, Kasuke teaches an electric double layer capacitor where in the specific surface area of an active carbon material used as an anode and cathode is specified as 1000 m²/g to 2500 m²/g and 500 m²/g to 1500 m²/g respectively. These surface areas are specified to improve the capacitor output capacity (abstract). Therefore, it would have been obvious to one skilled in the art at the time invention was made to use carbonaceous material comprising active carbon having surface area between 500 to 2500 m²/g in the binder composition of Yamakawa et al, because it has been proven successfully by Kasuke and one of ordinary skill in the art would have expected the specified surface area of 500 to 2500 m²/g to result in improvement of capacitor output capacity, motivated by expectation of success.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karuna P. Reddy whose telephone number is (571) 272-6566.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information

Art Unit: 1713

for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Karuna P Reddy
Examiner
Art Unit 1713



DAVID W. WU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700